Amendments to the Claims:

1.-21. (canceled)

22. (previously presented) A method for recording microstructural changes in a layer system component of a gas turbine, comprising:

non-destructively measuring a material parameter of the component a plurality of times at differing time points,

wherein the material parameter is selected from the group consisting of: electrical capacitance, specific heat capacity, peltier coefficient, magnetic susceptibility, ferroelectricity, and pyroelectricity;

comparing the plurality of measurements for a change in material parameter; and

determining if a predetermined threshold percentage change in the measured material parameter is exceeded based on the comparison of the plurality of measurements.

23. (previously presented) The method as claimed in claim 22, wherein the first of the plurality of material parameter measurements is performed on a new component or before the first operational use of the component.

24. (previously presented) The method as claimed in claim 23, wherein a subsequent material parameter measurement is performed at a time interval after the first measurement and after or during the first operational use.

25. (cancelled).

26. (previously presented) The method as claimed in claim 22, wherein the component comprises a substrate and a layer.

27. (previously presented) The method as claimed in claim 26, wherein the component comprises a substrate, a first layer and an outer layer.

28. (previously presented) The method as claimed in claim 26, wherein the material parameter measurement method is used to examine microstructural changes in the substrate or the layer of the component which are caused by:

a change in a precipitation of the substrate or the layer material, or

cracks in the substrate or layer.

29. (previously presented) The method as claimed in claim 26, wherein the substrate or the layer is an alloy and magnetic susceptibility is used to examine microstructural changes in the substrate or the layer caused by depletion of an alloying element.

30. (previously presented) The method as claimed in claim 29, wherein the layer is a porous ceramic layer.

31. (previously presented) The method as claimed in claim 30, wherein the material parameter measurement method is used to examine microstructural changes in the substrate or the layer, which are caused by a phase change in the substrate or the layer material.

32. (cancelled).

33. (previously presented) The method as claimed in claim 26, wherein the material parameter of the substrate is determined with the layer present arranged on the substrate.

34. (previously presented) The method as claimed in claim 31, wherein a material parameter of the combined substrate and layer is determined.

35. (cancelled)

36. (previously presented) The method as claimed in claim 31, wherein the layer is an MCrAlX layer where M stands for at least one element selected from the group consisting of iron, cobalt or nickel and X stands for yttrium, silicon or at least one rare earth element.

37. (previously presented) The method as claimed in claim 22, wherein the component is a turbine blade, vane or a lining of a combustion chamber.

38. (previously presented) The method as claimed in claim 22, wherein the material parameter measurement is performed on line.

39. (previously presented) The method as claimed in claim 22, wherein a time period is determined where the component is to be inspected, refurbished or replaced once a predefined percentage change in the material parameter is exceeded.

40. (cancelled).

41. (canceled)

42. (previously presented) The method as claimed in claim 26, wherein the layer comprises a ceramic material and the material parameter is ferroelectricity or pyroelectricity of the ceramic material.

43. (previously presented) The method as claimed in claim 22, wherein the layer system comprises a ceramic and the material parameter is electrical capacitance.

44. (previously presented) The method as claimed in claim 22, wherein the material parameter is the peltier coefficient.

45. (previously presented) The method as claimed in claim 22, wherein the material parameter is the specific heat capacity.